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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,916	03/19/2004	Robert Griffioen	9-13528-216US	6394
20988	7590	03/07/2006	EXAMINER	
OGILVY RENAULT LLP 1981 MCGILL COLLEGE AVENUE SUITE 1600 MONTREAL, QC H3A2Y3 CANADA			LU, TONY W	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H:A

**Office Action Summary**

Application No.

10/803,916

Applicant(s)

GRIFFIOEN, ROBERT

Examiner

Tony Lu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-12, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 13-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/19/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed on 03/19/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,10,12 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffe et al US6313459.

With respect to claim 1, Hoffe et al disclose a method and/or an optical system comprising: a feedback control circuit(102) for controlling a gain of the photodiode(202, an avalanche photodiode integrated to an optical receiver ) by monitoring an operating parameter(temperature and/or optical power) of the photodiode, and computing and applying an optimal gain setting(optimum operation) in accordance with changes in the operating parameter(read col.4, lines 13-40); using the operating parameter to detect a potential overload state(breakdown voltage) in which the photodiode is susceptible to optical overload; and controlling the feedback control loop so that if the potential

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overload state is detected, the feedback control loops is instructed to apply a predetermined safe gain setting(control procedure) to the photodiode.

With respect to claims 10 and 19, Hoffe et al disclose a method and/or an optical system comprising: a feedback control circuit(102) for controlling a gain of the photodiode(converts optical signals to analog electrical signals) in response to an operating parameter(temperature and/or optical power) of the photodiode(APD type); a state detector(processor,204) for detecting if the operating parameter indicates that the photodiode is in a potential overload state(breakdown voltage) in which the photodiode is susceptible to overload, and for issuing an instruction(control procedure) over the continuous feedback control circuit to apply a predetermined safe gain setting( $V_c$ ) to the photodiode when the potential overload state is detected(read col.8-9).

With respect to claim 12, per the above discussion, Hoffe et al disclose the state detector comprises an optical power monitor(208,210,212) that compute an optical power incident the photodiode.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffe et al US6313459.

With respect to claim 20, per the above discussion, note that Hoffe et al disclose the state detector monitors an optical power incident the photodiode; compares the optical power with both a loss of signal(LOS, when the APD gain falls below the optimum gain, a minimum value, read col.8 lines 9-59) and an overload signal threshold(breakdown voltage or  $M_{max}$ ), but Hoffe et al lacks a clear teaching of applying a low sensitivity gain setting if the optical power is below the loss of signal threshold, and deactivating the photodiode if the optical power is above the overload signal threshold.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hoffe et al by applying a specific gain setting in order to prevent the gain of the photodiode from going below an undesired threshold and maintain the proper operation of the photodiode, and deactivating the photodiode when the optical power is above the overload signal threshold in order to prevent the photodiode from destruction and/or overheating in order to ensure the desired and/or proper operation of the photodiode.

Claims 2-4,7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffe et al US6313459 in view of Funaba US5281844.

With respect to claims 2,3 and 11, per the above discussion, Hoffe et al disclose the photodiode is an avalanche photodiode(APD) and a bias control circuit(205) for modulating the bias of the APD but lack a clear teaching of whether or not the bias control circuit modulates a reverse bias voltage across a depletion region of the APD.

Funaba discloses a conventional avalanche photodiode operation with reverse biasing voltage across a depletion region of the avalanche photodiode(read col.1, lines 5-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hoffe et al with the conventional operation of the avalanche photodiode taught by Funaba in order to provide detailed and/or proper operation of APD.

With respect to claim 4, per the above discussion, Hoffe et al disclose wherein monitoring the potential overload state comprises measuring an operating temperature of the photodiode(read col.4, lines 35-65).

With respect to claims 7 and 8, per the above discussion, Hoffe et al disclose determining that the measured optical power indicates that the photodiode is susceptible of overload(read col.8-9) when the measured optical power is above an overload threshold(breakdown voltage) that is associated with an overload condition.

Hoffe et al lacks a clear teaching of deactivating the photodiode when the overload optical signal condition is detected.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hoffe et al accordingly in order to prevent the photodiode from destruction and/or breakdown.

With respect to claim 9, per the above discussion, although Hoffe et al lack a clear teaching of raising an alarm that can only be cleared by network management after deactivating the photodiode.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hoffe et al by providing an alarm signal and/or alert to users and prompt for further instructions and/or commands in order to provide notifications to the users about the status of the system and/or provide users more control to the operation of the system.

***Allowable Subject Matter***

Claims 5-6 and 13-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose an optical system and its method, among other features and steps, determining that the photodiode is in a potential overload state if the measured optical power from the photodiode falls below a loss of signal threshold during which no optical signal is received.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

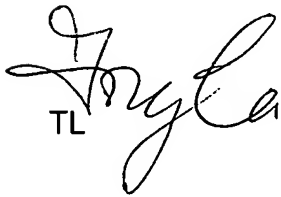
1) Anderson US5929982 discloses an active APD gain control system for establishing the optimum bias for optimum gain of the APD.

2) Douma et al US6852966 disclose a method and a system for compensating a photodetector(APD type).

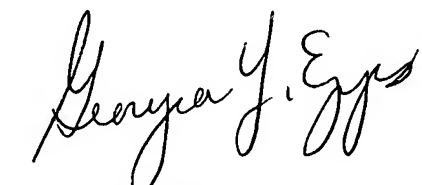
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Lu whose telephone number is 5712728448. The examiner can normally be reached on M-F 9:00am- 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 5712722328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Handwritten signature of Tony Lu, with the initials "TL" written below the first letter of the first name.



Handwritten signature of Georgia Epps.

Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800